
North Coast Regional Water Quality Control Board

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DATE: October 27, 2016

SUBJECT: GeoTracker / GAMA Data / Mendocino County LAMP Review

This memo contains a summary of some available data in GeoTracker/Groundwater Ambient Monitoring and Assessment (GAMA) program database and the type of analysis that is possible using the database. Additional comments are provided with respect to hydrogeologically sensitive areas (HVAs), salt and nutrient management planning, and local coordination.

OWTS Policy 9.1.1 (Sensitive hydrological conditions)

1) This section is unclear how the County's stated water quality assessment program and occasional sampling of performance wells for non-standard OWTS will provide adequate evidence of hydrogeological vulnerable areas. Local surveys will provide better information to identify hydrogeologically vulnerable areas. County might add that soil and groundwater conditions are assessed for new, replacement, and repair OWTS during plan review and that information obtained during these assessments is used to identify hydrogeologically vulnerable areas. County staff may also be aware that the State Water Board with Department of Water Resources (DWR) gathered information identifying groundwater basins that are considered to be HVAs

In November 2000 the State Water Board developed a map and index HVAs within Department of Water Resources (DWR) identified groundwater basins. The map was created in 2000 DWR and US Geological Survey publications. Data from these publications were used to identify areas where geologic conditions are more likely to allow recharge at rates substantially higher than in lower permeability or confined areas of the same groundwater basin. Groundwater resources underlying designated (i.e., published) recharge, rapid infiltration, or unconfined areas were considered categorically more vulnerable to potential contaminant releases than groundwater underlying areas of slower recharge, lower infiltration rates, or intervening low permeability deposits (i.e., confining layers).

DWR Basins identified in Mendocino County include:

1-11 Round Valley	1-12 Laytonville Valley	1-13 Little Lake Valley
1-19 Anderson Valley	1-20 Garcia River Valley	1-21 Fort Bragg Terrace
1-40 Ten Mile River Valley	1-41 Little Valley	1-45 Big River Valley
1-46 Navarro River Valley	1-47 Gualala River Valley	1-51 Potter Valley
1-52 Ukiah Valley	1-53 Sanel Valley	

Additional groundwater basins are presented in the list, but are identified as low use/low risk.

2) Section 4.14.2 (Wastewater Services) of the 2008 Environmental Analysis associated with the Mendocino County General Plan identifies Anderson Valley and Laytonville unfavorable conditions that constrain septic system usage or effectiveness. It is recommended that the LAMP build off the existing knowledge for identifying areas that are vulnerable due to such hydrogeological conditions.

OWTS Policy 9.2.8 (Regional Salt and Nutrient Management Plan Considerations)

To date there have been no salt and nutrient management planning efforts in Mendocino County. As noted in the 2008 General Plan DEIR 50% of the housing units in Mendocino County use on-site systems for sewage treatment. Therefore, OWTS are a significant portion of the salt and nutrient load to groundwater. The LAMP should address salts and nutrients programmatically and in areas outside the DWR identified groundwater basins by coordinating with local groundwater planning efforts and data collection and analysis. The LAMP and associated water quality assessment programs should coordinate with localized or county-wide groundwater planning efforts. Examples of basin-wide and site-specific analysis are provided below in the GAMA data summary.

OWTS Policy 9.2.9. (Watershed Management Group Coordination)

The lamps should coordinate with local groundwater management planning efforts such as groundwater sustainability plans or voluntary groundwater management plans to share local resources, assessments and monitoring program implementation.

GAMA Program Data for the Ukiah Valley Basin

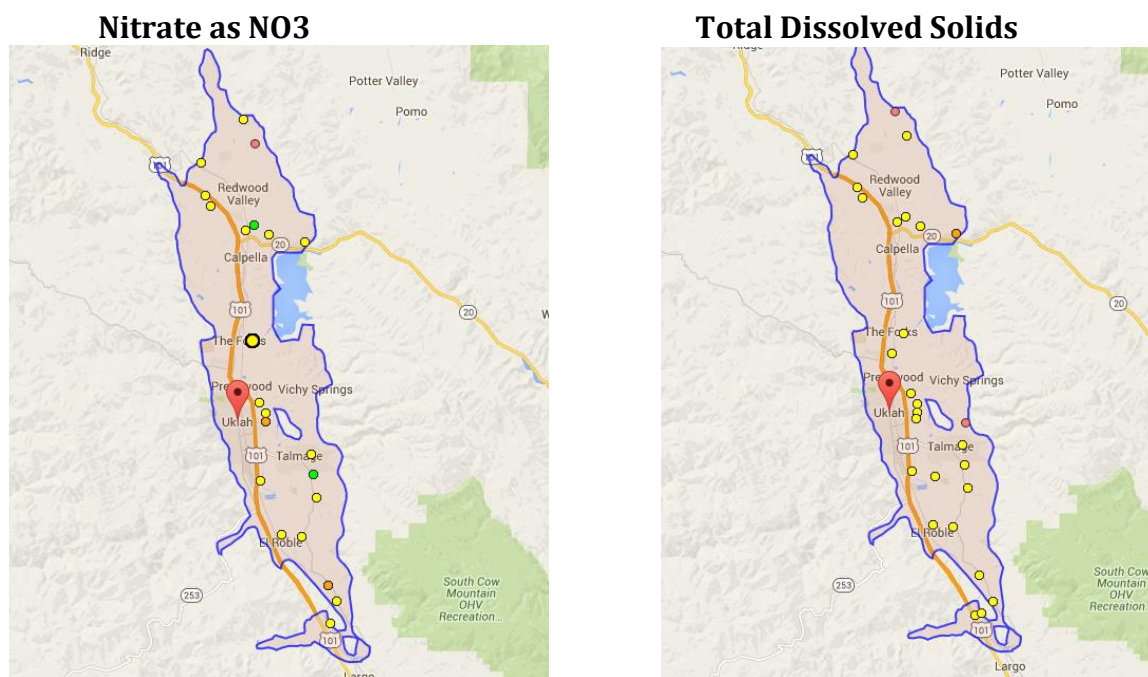


Figure 1. The image on the left shows Nitrate as NO3 data available in GAMA located in the basin. On the right are locations with concentrations of Total Dissolved Solids (TDS). There are 63 wells in the GIS layer for the Basin.

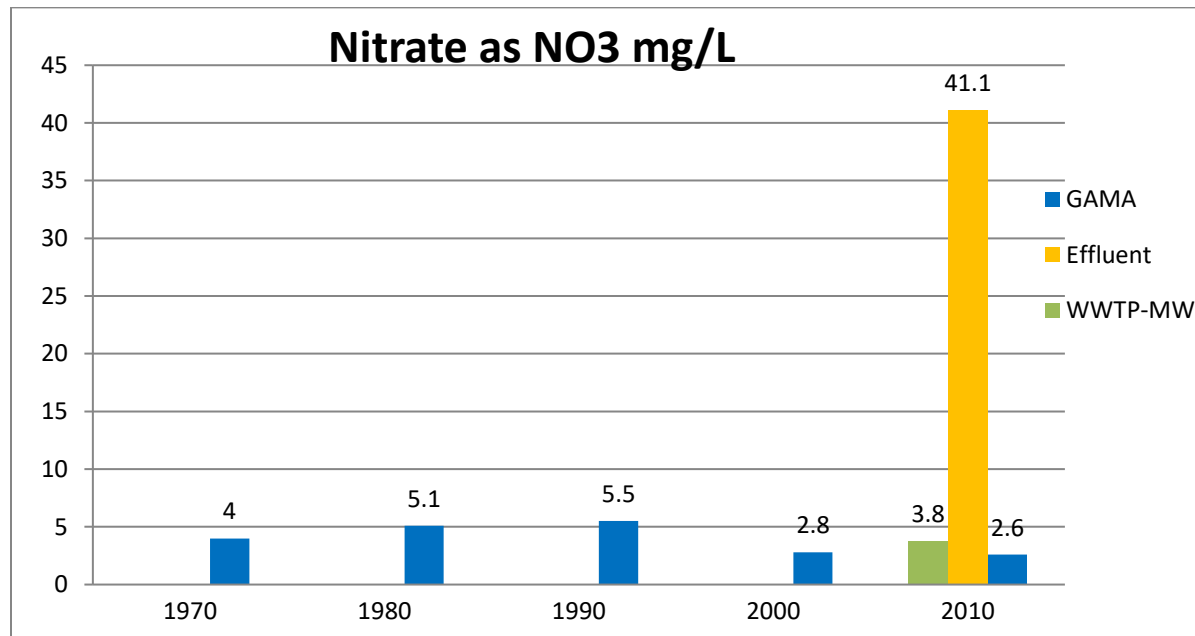


Figure 2. Shows average results from 577 samples from 37 wells between 1972 and 2016 (GAMA). The average concentration of Nitrate as NO3 in Ukiah's effluent is 41.1 mg/l (169 Samples between 2010 and 2016, CIWQS). The average concentration of groundwater in the WWTP monitoring wells in 0.86 mg/l* (excludes a single data anomaly).

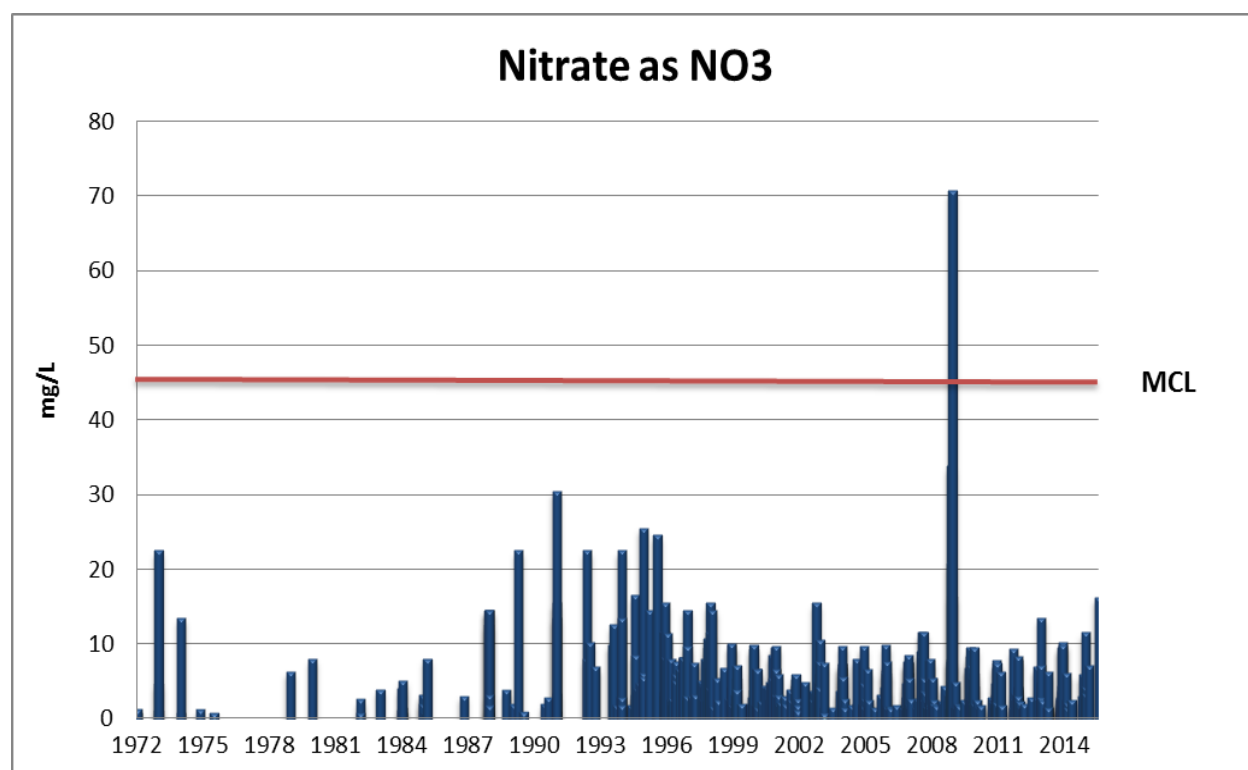


Figure 3. Individual well results from 577 samples from 37 wells between 1972 and 2016.

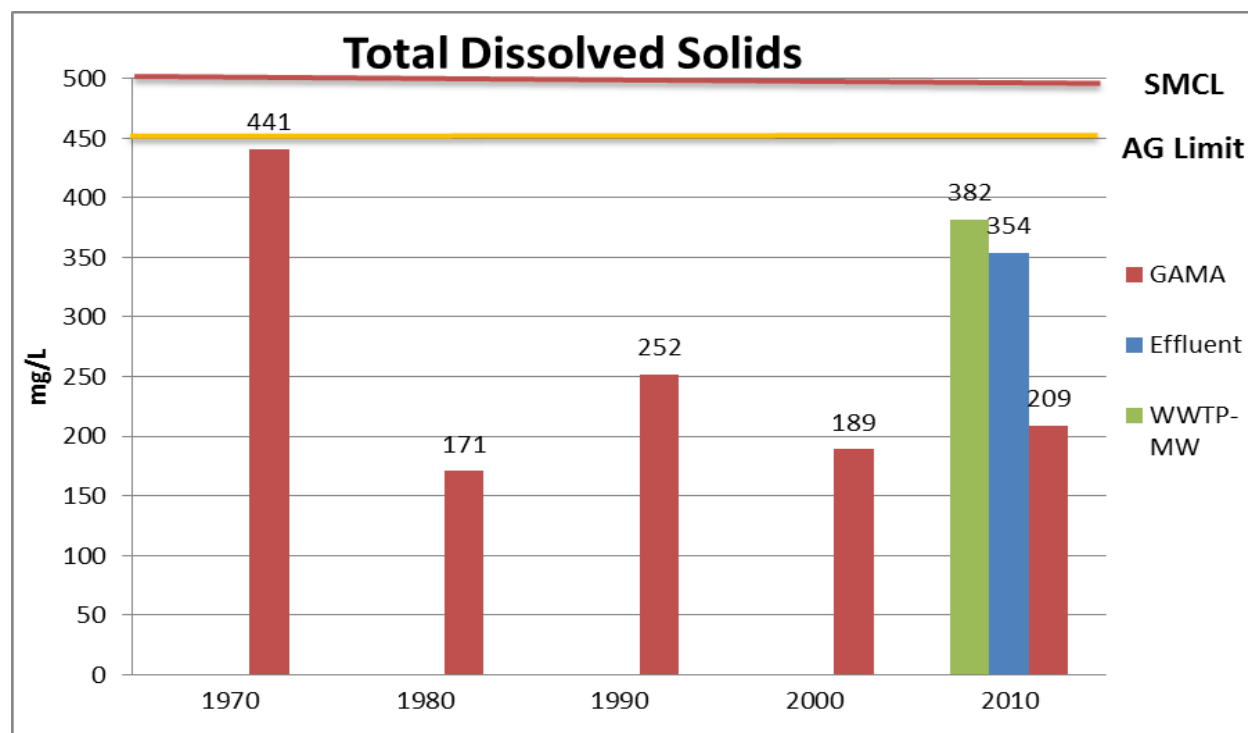


Figure 4. Shows average results from 231 samples from 52 wells between 1972 and 2015 (GAMA). The average concentration of TDS in Ukiah's effluent is 354 mg/l (169 Samples between 2010 and 2016, CIWQS). The average concentration of groundwater in the wastewater treatment plant groundwater monitoring wells is 382 mg/l.

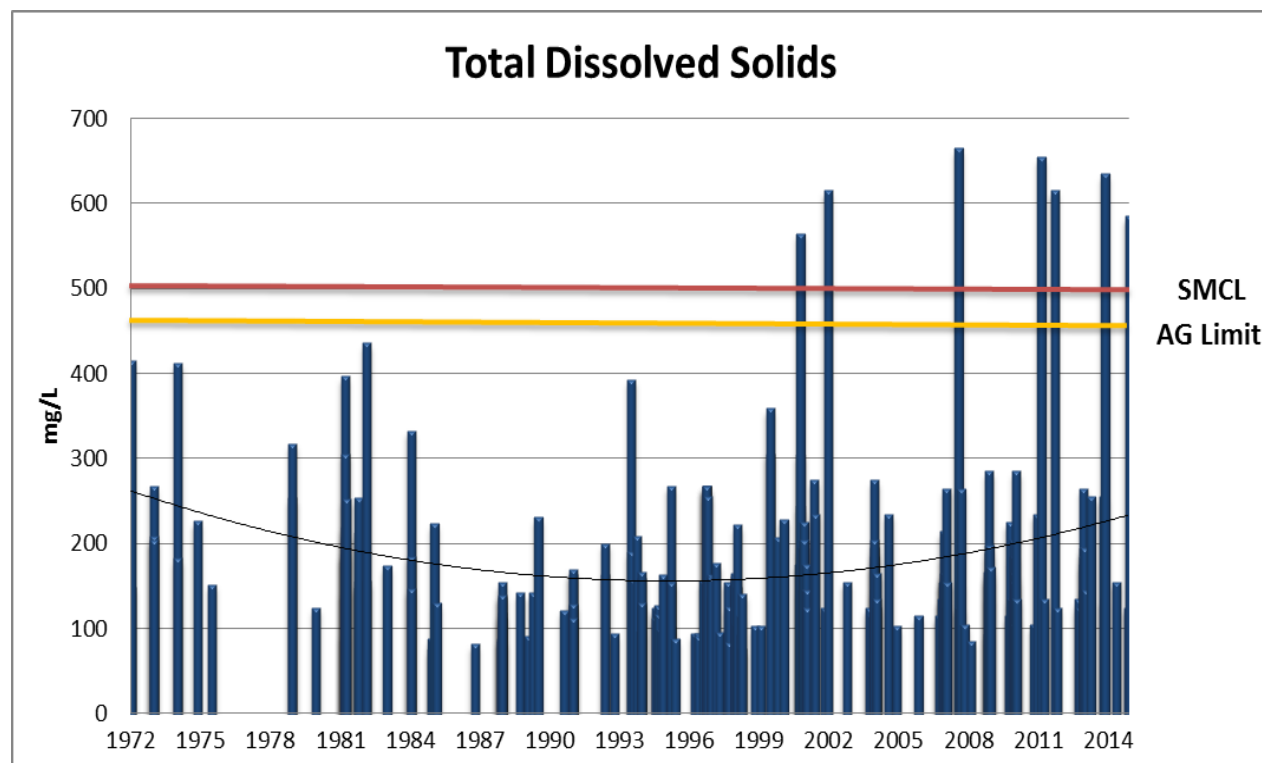
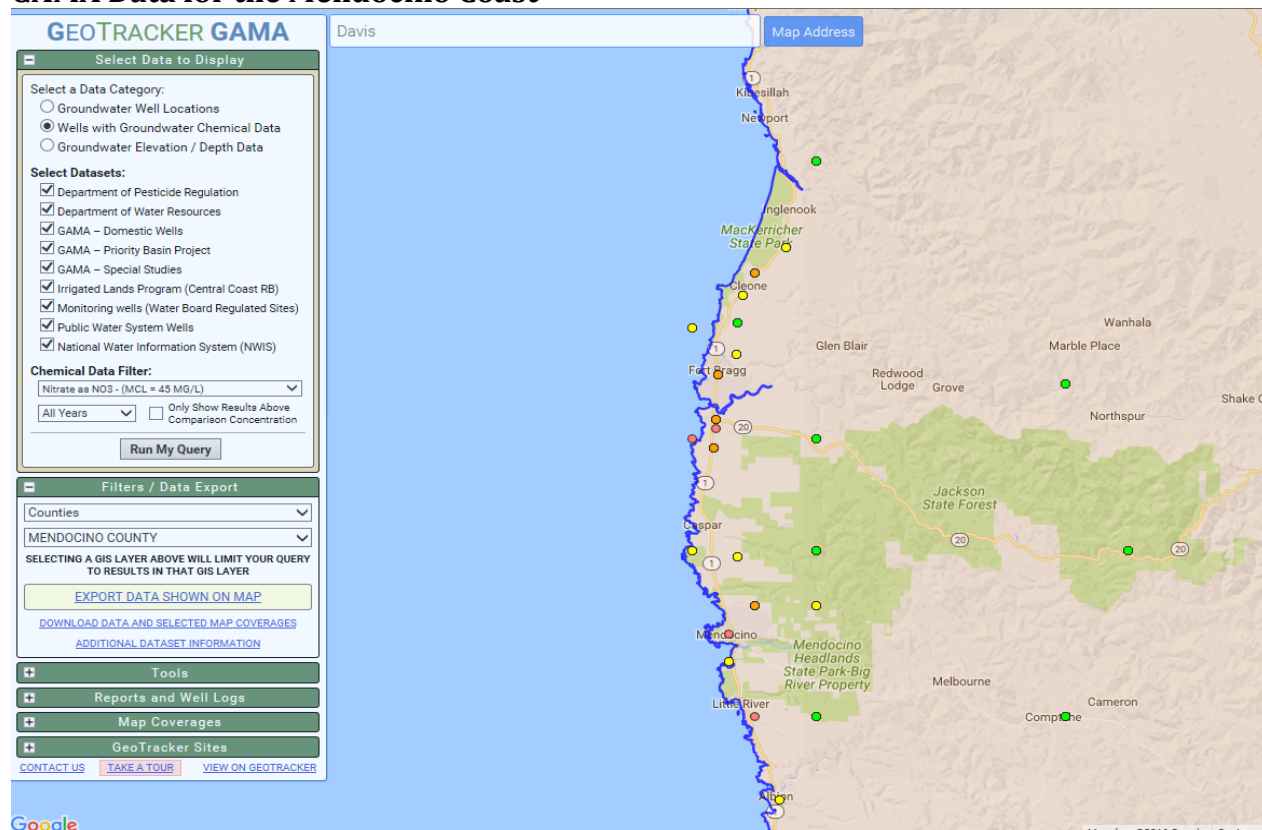


Figure 5 shows individual well results from 231 samples between 1972 and 2015.

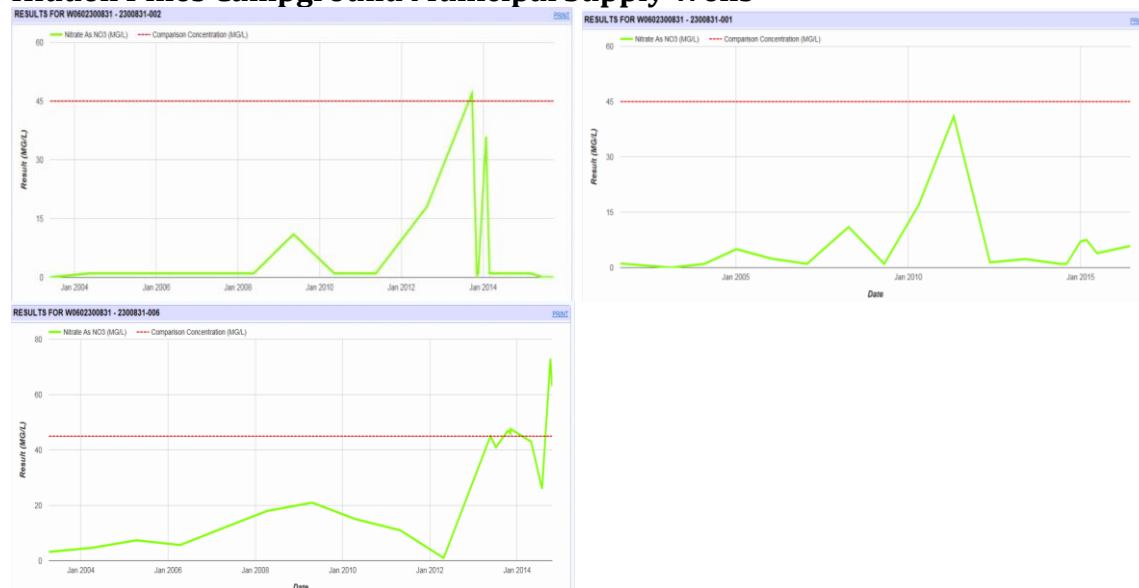
GAMA Data for the Mendocino Coast



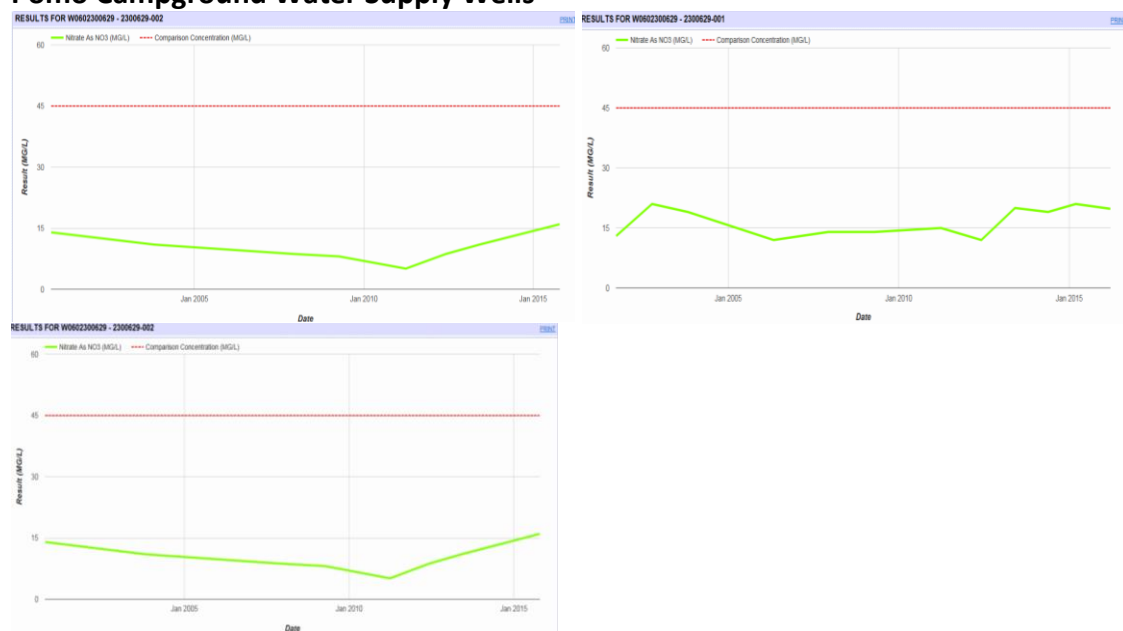
The image above shows groundwater data including wells along the coast. There are several water supply wells along the coast, but particularly south of the Noyo River, those have either:

1. Increasing trends of nitrate;
2. Nitrate concentrations that exceed the water quality objective for human health; and/or
3. Nitrate concentrations that exceed the range of natural background for nitrate.

Data from wells south of Noyo River Hidden Pines Campground Municipal Supply Wells



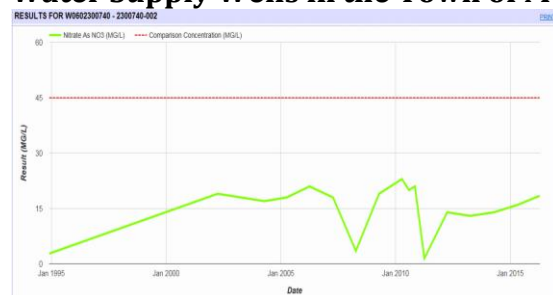
Pomo Campground Water Supply Wells



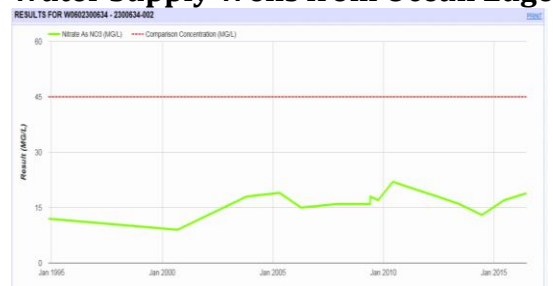
Woodside RV Park Water Supply Wells



Water Supply Wells in the Town of Mendocino



Water Supply Wells from Ocean Edge Lodge in Cleone



Water Supply Well Green Acres Trailer Park

